REMARKS

Applicant thanks the Examiner for the very thorough consideration given the present application. In view of the above amendment, applicant believes the pending application is in condition for allowance.

Claims 1, 2, 5, 6, 8-15, 17 and 18 are now present in this application. Claims 1, 8, 17 and 18 are independent. Claims 1, 8, 12, 13, 17 and 18 have been amended by the present amendment. Reconsideration of this application, as amended, is respectfully requested.

Claim Objections

The Examiner has objected to claims 1, 8, 12, 13, 17 and 18 because of several informalities. In order to overcome this objection, Applicant has amended claims 1, 8, 12, 13, 17 and 18 in order to correct the deficiencies pointed out by the Examiner. Reconsideration and withdrawal of these objections are respectfully requested.

Rejection Under 35 U.S.C. § 112, 2nd Paragraph

Claim 1 stands rejected under 35 U.S.C. § 112, 2nd Paragraph as being incomplete for omitting essential cooperative relationships of elements. This rejection is respectfully traversed.

The Office Action states that the omitted structural cooperative relationships are: the ultrasonic signal oscillating units are oscillated sequentially after the RF signal is received by the RF reception unit (see page 3-4 of the Office Action).

Claim 1 has been amended to recite the ultrasonic signals are oscillated sequentially after receiving a radio frequency (RF) signal emitted at preset time intervals from the mobile robot. The essential cooperative relationships are described at least on Page 10, lines 2-6 of the specification. The specification on Page 10, lines 2-6 discloses that "the microcomputer 6 detects reaching time taken for each of first and second ultrasonic signals to be received by one or more ultrasonic signal reception means (Rx1 ~ Rxn) after being sequentially oscillated by the first and second ultrasonic signal oscillating means 3, 4, on the basis of a point of time at which

an RF signal, which is generated at preset time intervals, is generated." Therefore, claim 1, as amended, includes essential cooperative relationships of elements.

Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejection Under 35 U.S.C. § 103

Claims 1, 2, 5, 6, 8-15, 17 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over De Bruyne in view of Passey and Lee et al. This rejection is respectfully traversed.

Independent claim 1 recites, among other features, "prestoring position numbers for discriminating positions of at least one or more ultrasonic signal reception, among a plurality of ultrasonic signal reception units." Similarly, independent claim 17 recites, among other features, "a storing unit configured to store position numbers for discriminating positions of the plurality of ultrasonic signal reception units." Dependent claim 13 also includes similar features in a varying scope.

The Office Action states that these features do not read on De Bruyne or Passey, but reads on Lee et al. Lee et al. teaches having a first receiving unit including at least two sound sensors receiving the sound wave, and a second receiving unit which receives the synchronizing signal incident onto the robot (see paragraph [0011] of Lee et al.). However, Lee et al. does not teach storing position numbers for discriminating positions of at least one or more ultrasonic signal reception, among a plurality of ultrasonic signal reception units. Nowhere in Lee et al. discloses storing position numbers. Rather, Lee et al. only teaches the current position and orientation of the robot with respect to the docking station using the distance, incident angle and the positional change (see paragraph [0047] of Lee et al.). Further, Lee et al. does not teach or suggest that a plurality of ultrasound signal reception units receive the ultrasonic signals oscillated by the ultrasonic signal oscillating units. Rather, Lee et al. only teaches sound sensors receiving the supersonic waves. Therefore, De Bruyne and Passey, even when combined with Lee et al., fails to teach or suggest the features of claims 1, 13 and 17.

Further, independent claim 1 recites, among other features, "a radio frequency (RF) signal

emitted at preset time intervals from the mobile robot." Independent claim 8 includes similar features in a varying scope.

The Office Action on page 6 states that De Bryune does not disclose that the RF signal is emitted at preset time intervals and that Passey discloses these features. Passey teaches that the pulse duration is of the order of a few milliseconds and the pulse interval is of the order of a few seconds. However, Passey does not teach that the RF signal emitted at preset time intervals is from the mobile robot. The location from which the RF signal is emitted in Passey is not the mobile robot. Therefore, De Bruyne and Lee et al., even when combined with Passey, fail to teach or suggest these features of claims 1 and 8.

Further, independent claim 8 recites, among other features, "a control unit configured to control the ultrasonic signal oscillating units so that the ultrasonic signals are oscillated sequentially." Independent claims 17 and 18 include similar features in a varying scope.

The Office Action on page 9 states that De Bruyne teaches in Fig. 3 signals (b) and (c) that are sequentially generated after the synchronizing pulse (a). However, De Bruyne discloses that the sound pulse shown in (b) of Fig. 3 is transmitted from the ultrasound transmitter, and the sound pulse triggers an electrical signal, which is amplified by the pre-amplifier 8, which is shown in (c) of Fig. 3 (see col. 6, lines 32-41 of De Bruyne). Thus, the signals (b) and (c) in Fig. 3 of De Bruyne are not the ultrasonic signals are oscillated sequentially. Therefore, De Bruyne, even when combined with Passey and Lee et al., fails to teach or suggest a control unit configured to control the ultrasonic signal oscillating units so that the ultrasonic signals are oscillated sequentially, as recited in claims 8, 17 and 18.

Accordingly, it is respectfully submitted that amended independent claims 1, 8, 17 and 18 and each of the claims depending therefrom are allowable.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Jun S. Ha, Registration No. 58,508, at (703) 205-8000, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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